

The influence of cognitive factors on guesses about the meaning of English word groups and phrases

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Abstract: During the English language learning, it is common for Chinese students to have to guess the meaning of new word groups or phrases. The guessing ability may be related to the cognitive sameness and differences between Chinese and English people. In order to validate this hypothesis, the author carried out a research by having students doing test papers. Finally the result of the research proved the hypothesis.

Key words: cognitive differences between Chinese and English people; guess ability; word group; phrase

1. Introduction

Almost all of the Chinese students who study English as a foreign language have this kind of experience: during the period of listening, speaking, reading and writing, they often meet some unfamiliar word groups or phrases. In this case, the ability of guessing the meaning of these word groups or phrases becomes very important because it influences the effect of listening, speaking, reading and writing. The action of guessing can be carried out according to the context of word groups and phrases, or according to the inner structural organization of them, or according to the grammatical structure of them, but all the processes of guessing are related to cognitive factors. It is well known that due to the differences of cultures, there are some differences between the thoughts of Chinese and English people, so there is cognitive difference between them. Therefore, the investigation of the influence of cognitive sameness and differences between Chinese and English people on the meaning guess of unfamiliar word groups and phrases in English language learning turns out to be of great significance. Considering its possible positive influence on English learners' ability of listening, speaking, reading and writing. It is necessary to carry out the research. According to the present research, there is no such research as that, so the research shows more necessity and urgency.

2. The process of the research

Before the research, what should be noticed is that there are some cognitive sameness and differences between Chinese and English people. Both cognitive sameness and differences will influence the ability of guessing the meaning of word groups and phrases. And here the researcher supposes that when the cognitive ways are the same between Chinese and English people, learners' ability of guessing the meaning is higher than when the cognitive ways are different. In order to test this hypothesis, the researcher carries out the following research.

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2.1 The design of the research

2.1.1 Objective of the research

(1) To test whether learners' ability of guessing the meaning of unfamiliar word groups and phrases is higher when the cognitive ways between Chinese and English people are the same than when the cognitive ways are different.

(2) To test whether the difference of gender will influence the ability of guessing the meaning of unfamiliar word groups and phrases.

2.1.2 Participants of the research

There are 70 participants who are graduate college students majoring in English in Foreign Languages College of Shandong University. Among them, there are 13 male, and 57 female, whose average age is 22.21 and average years of studying English are 10.1 years. They received the paper test of this research in November, 2004.

2.1.3 Tool used in the research

This research adopts the form of paper test. The paper test is designed for this research particularly, which has two parts: exercise one of translation from English to Chinese and exercise two of translation from Chinese to English, with each part having 10 small items: for five items cognitive ways between Chinese and English people being the same and for five items being different. For each item, every student is required not only to answer it but also to answer the question whether he or she can answer the question because he or she knows the answers before. If the answer is yes, then this item is invalid. For items that students answer completely depending on their guessing ability, one item is given 2 points if it is answered correctly, or given 1 point if it is answered incorrectly, based on which the total scores of one student on items of the same cognitive ways and on items of different cognitive ways will be calculated. Then the two total scores of one student will be divided correspondingly by the number of valid items of the same cognitive ways between Chinese and English people (for convenience it is abbreviated as same cognitive ways below) and by the number of valid items of different cognitive ways between Chinese and English people (for convenience it is abbreviated as different cognitive ways below). Consequently we will get the average score of one item for one student, which is called "scores for one student" for convenience. So each student will get two scores: one is the score on items of the same cognitive ways and another is that on items of different cognitive ways.

2.1.4 Collection and analysis of data

The researcher carried out the research in November 2004. First the participants were required to have the test paper. Next the data were calculated and collected according to the ways listed in the "tool used in the research" above. Then the scores on items of the same cognitive ways and on items of different cognitive ways are respectively input into the software of SPSS by which these data were analyzed immediately. During the process of data collection and data analysis, the researcher consulted two books: *Second Language Research Methods* (Seliger, et al., 1989) and *Learning Strategies in Second Language Acquisition* (O'malley, et al., 2001). The data analysis will be carried out on four steps: (1) To get the mean and standard deviation of the scores of all the participants on items of the same cognitive ways and the mean and standard deviation of the scores of all the participants on items of different cognitive ways, then make a comparison. (2) To examine the effectiveness of the comparison between the scores of all the participants on items of the same cognitive ways and the scores of all the participants on items of different cognitive ways with t-test. (3) To get the means of the scores of male students

and female students respectively on items of the same cognitive ways and then to examine the effectiveness of the comparison between the scores of male students and female students on items of the same cognitive ways with t-test. (4) To get the means of the scores of male students and female students respectively on items of different cognitive ways and then to examine the effectiveness of the comparison between the scores of male students and female students on items of different cognitive ways with t-test.

2.2 Results of the research and discussion

2.2.1 The differences between items of the same cognitive ways and items of different cognitive ways

Getting the mean and standard deviation of the scores of all the participants on items of the same cognitive ways and the mean and standard deviation of the scores of all the participants on items of different cognitive ways, make a comparison.

By calculation with SPSS, the mean score of all the participants on items of different cognitive ways is 1.1796 and the standard deviation is 0.15995, while on items of the same cognitive ways the mean score is 1.5789 and the standard deviation is 0.17679 (see Table 1). According to the standard of going over the examination paper, one item with correct answer will get 2 points while one item with incorrect answer will get 1 point, so the mean scores just mentioned above show the fact that if the mean score is more close to the score of 1, the mean score is lower, therefore the ratio of answering the items correctly is lower comparatively; on the contrary, if the mean score is more far away from the point of 1, the mean score is higher, therefore the ratio of answering the items correctly is higher comparatively. So on items of different cognitive ways the participants made more errors and the ratio of answering wrongly is higher ($1.1796-1=0.1796$), while on items of the same cognitive ways the participants made fewer errors and the ratio of answering wrongly is lower ($1.5789-1=0.5789$). Here we can conclude that when facing items of the same cognitive ways, participants' guessing ability is higher than when facing items of different cognitive ways. The explanation is that no matter on items of the same cognitive ways or on items of different cognitive ways, participants are likely to use the Chinese cognitive ways to guess their meaning, so on items of the same cognitive ways, it is easier for the participants to guess their meaning, while on items of different cognitive ways, it is the different story. As for the standard deviation, the number is little bigger on items of the same cognitive ways than on items of different cognitive ways. The possible explanation is that on items of different cognitive ways, it is more difficult to guess their meaning, then the participants' guessing results are comparatively unitary and tend to be wrong. However, on items of the same cognitive ways, the participants' guessing results present various possibilities and are widespread comparatively.

Table 1 The mean score and standard deviation of all participants

Types of items	Mean score	Standard deviation
Items of the same cognitive ways	1.5789	0.17679
Items of different cognitive ways	1.1796	0.15995

2.2.2 Examining the effectiveness of the comparison

Examining the effectiveness of the comparison between the scores of all the participants on items of the same cognitive ways and the scores of all the participants on items of different cognitive ways with t-test.

Table 2 Comparison between the scores of all participants on items of the same cognitive ways and Items of different cognitive ways

	Mean scores	t-value	p
Items of the same cognitive ways	1.5789	-15.071	0.000
Items of different cognitive ways	1.1796		

With t-test, we get the following data: $t=-15.071$, $p=0.0000$ ($p\leq0.05$) (see Table 2), so the difference between them is remarkable and has the statistic significance. This result shows the participants’ guessing ability differs greatly between on items of the same cognitive ways and on items of different cognitive ways.

2.2.3 The influence of gender on scores

Getting the means of the scores of male students and female students respectively on items of the same cognitive ways and then to examine the effectiveness of the comparison between the scores of male students and female students on items of the same cognitive ways with t-test.

By calculation (see Table 3), for items of the same cognitive ways, the mean scores of the male students and female students are very close (male students: 1.6000, female students: 1.5740), because the gap is as small as 0.0260. Then we use 1 to represent male participant and 2 to represent female participant, and use t-test to examine the effectiveness of the comparison between the scores on the items of the same cognitive ways of male participants and female participants. Due to the unequal number of male participants and female participants, the t-test gives us two results: (1) $t=0.475$, $p=0.636$ (equal number of male participants and female participants assumed), (2) $t=0.488$, $p=0.631$ (unequal number of male participants and female participants assumed). Seeing the two results, we find the p-value higher than 0.05, which shows the difference between the scores of male participants and female participants is very small and has no statistic significance. Therefore we can conclude that when the cognitive ways between Chinese and English people are the same, gender has little influence on guessing ability, which can be ignored in this research.

Getting the means of the scores of male students and female students respectively on items of different cognitive ways and then to examine the effectiveness of the comparison between the scores of male students and female students on items of different cognitive ways with t-test.

Table 3 Influence of gender on guessing ability

		Mean scores	t-value		p	
			Equal number of male and female assumed	Unequal number of male and female assumed	Equal number of male and female assumed	Equal number of male and female assumed
Items of the same cognitive ways	male	1.6000				
	female	1.5740	0.475	0.488	0.636	0.631
Items of different cognitive ways	male	1.2854				
	female	1.1554	2.768	3.255	0.007	0.004

By calculation of SPSS, we find the mean scores of male participants and female participants differ greatly (male participants: 1.2854, female participants: 1.1554) (see Table 3), which reaches the level of 0.1300. then examining by the t-test, we get two results too: (1) $t=2.768$, $p=0.007$ (equal number of male participants and female participants assumed), (2) $t=3.255$, $p=0.004$ (unequal number of male participants and female participants assumed). From the results, we can find the p-value much smaller than 0.05, which shows a remarkable difference.

It tells us that when the cognitive ways between Chinese and English people are different, male participants' guessing ability is higher than female participants. Namely, when the cognitive ways between Chinese and English people are different, gender has a strong influence on the guessing ability of meaning of unfamiliar word groups and phrases. The reasonable explanation is that male students read books in a wider scope, therefore get more knowledge of the cognitive difference between Chinese and English people, which make the guessing process brave and reasonable. However, female students spend more energy on their textbooks and read fewer extra books, therefore get less knowledge of the cognitive difference between Chinese and English people, which frequently results the invalid guessing action. Whether this explanation is reasonable or not should depend on the further research in the future.

2.3 Summary of the research

The result of the research can be summarized as follows:

- (1) The sameness and difference of cognitive ways of Chinese and English people has influence on the guessing ability of the meaning of word groups and phrases. When cognitive ways are the same, students' guessing or understanding ability is obviously higher than when the cognitive ways are different.
- (2) Gender also has some influence on students' guessing ability of the meaning of word groups and phrases and this influence is shown mainly when Chinese and English people have different cognitive ways, with the male students having higher guessing ability than female students.

3. Conclusion

The research of all kinds of problem in English learning from cognitive angle is of interests for linguistic researchers at present. In this research, the researcher only seizes one of the aspects to research. Though the result of the research is not out of people's expectation, it has the quality of proving hypothesis and foreshadowing the further research. "...Cognitive linguistics is cognition-oriented, explanation-oriented, semantics-oriented, and generality-orientated, which is a great development in the history of linguistic research and is beneficial for exploring the secrets of linguistic essence..."(ZHAO Yan-fang, 2001, p. 13), so there are bright prospects for linguistic cognitive research, and the breakthrough point of linguistic essence and secrets may be found here.

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